

WHAT IS CLAIMED IS:

1. A system for non-invasive analysis of a person's wrist complex comprising:  
a fixture with three or more contact points, wherein the three or more contact points are positioned such that forces applied thereto are balanced and wherein such contact points are configured to minimize the side loads.
2. The system of claim 1 wherein force detectors are operatively connected to at least two of said contact points.
3. The system of claim 2 wherein one force detector is engaged by a digit innervated by the ulnar nerve and another force detector is engaged by a digit innervated by the median nerve.
4. The system of claim 3 wherein a display unit displays information about the forces.
5. The system of claim 4 wherein at least one of the contact points is slideably engaged to the fixture.
6. The system of claim 4 wherein at least one of the contact points is slick.
7. The system of claim 6 wherein said contact points are adjustable.
8. The system of claim 6 wherein said contact points are of a rigid, substantially incompressible material.
9. The system of claim 4 wherein said display unit displays information on the forces applied to the force detectors as a function of time.
10. The system of claim 4 wherein the fixture includes contact points for a thumb, index finger, and small finger of a hand.

11. The system of claim 10 wherein said contact points are slick so that the surface of each contact point is generally perpendicular to the force exerted thereon.
12. The system of claim 10 wherein said contact points are slideably engaged to the fixture so that the surface of each contact point is generally perpendicular to the force exerted thereon.
13. The system of claim 10 wherein the projection of forces applied to said contact points do not intersect.
14. The system of claim 10 wherein force detectors are operatively connected to the contact points.
15. The system of claim 4 wherein said fixture has an upper contact point and a lower contact point and the projection of the force applied to the upper contact point projects away from the lower contact point.
16. The system of claim 4 further comprising a displacement measuring means operatively connected to the three or more contact points for measuring the displacement of said three or more contact points.
17. A method of determining the presence or absence of neural, muscular, soft tissue, bone or joint damage to the wrist complex comprising the steps of:
  - (a) engaging contact points with at least one digit innervated by the ulnar nerve and at least one digit innervated by the median nerve, wherein the contact points are configured to transmit forces normal to their surface;
  - (b) applying force on the contact points with said digits; and
  - (c) measuring the force applied to at least two of said contact points to provide quantifiable outputs therefor, wherein the outputs are used to diagnose wrist complex diseases and injuries.
18. The method of claim 17 wherein the quantifiable outputs representing the forces applied by at least two digits innervated by different nerves are displayed.

19. The method of claim 18 wherein the outputs are displayed as a function selected from the group consisting of time, frequency, phase, and any combination thereof.
20. The method of claim 19 wherein the measurements are processed by computer for storage or immediate use.
21. The method of claim 20 wherein the diseases and injuries are diagnosed using a technique selected from the group consisting of pattern recognition, neural networks, frequency analysis, phase analysis, signature analysis, graphic displays, and any combination thereof.
22. The method of claim 20 wherein the measurements are compared to earlier measurements at a frequency selected from the group consisting of hourly, daily, weekly, yearly and any combination thereof to determine long term effects of said diseases or injuries.
23. The method of claim 18 wherein the force is applied to said contact points for a prolonged period of time.
24. The method of claim 18 wherein the force is applied repeatedly to said contact points.
25. The method of claim 18 wherein a visual or audible signal is produced when force should be applied to said contact points.
26. The method of claim 17 wherein said contact points are provided on said fixture that allow displacement measurements to be made.
27. The method of claim 26 wherein said fixture is designed so that the force applied normal to the surface of the contact points is at least 70 % of the total force.
28. A force measuring device for transmitting forces applied by a hand comprising  
a fixture sized to be gripped by a hand;  
at least two contact points operably attached to said fixture to transmit the force applied

normal to the surface of said contact point;

a force detector coupled to said contact points for measuring force transmitted to said contact point.

29. The device of claim 28 wherein the fixture comprises an upper surface and a lower surface.

30. The device of claim 28 wherein the upper surface is parallel to the lower surface.

31. The device of claim 28 wherein a contact point is slideably engaged to the upper surface of the fixture.

32. The device of claim 28 wherein a contact point is slideably engaged to said fixture using rollers, wheels, bearings, rails, lubricant or any combination thereof.

33. The device of claim 28 wherein a contact point is slick.

34. The device of claim 28 wherein a contact point is coated with a lubricant.

35. The device of claim 28 wherein said fixture comprises an interior upper surface and an interior lower surface.

36. The device of claim 35 wherein the interior upper surface is parallel to the interior lower surface.

37. The device of claim 35 wherein a contact point is slideably engaged to the interior upper surface of said fixture.

38. The device of claim 35 wherein a contact point is slideably engaged to said fixture using rollers, wheels, bearings, rails, lubricant or any combination thereof.

39. The device of claim 35 wherein a contact point is substantially frictionless to reduce side loads.